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FEB 14 1991 Sheet 1 of 10

FORM PTO-1449 REV. 7-80		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY. DOCKET NO. CRP-00120V	SERIAL NO. 21,988			
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)						APPLICANT Uppermann et al.	GROUP 150			
						FILING DATE December 4, 1990	GROUP 1503			
U.S. PATENT DOCUMENTS										
*EXAMINER INITIAL		DOCUMENT NUMBER			DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
NMW	AA	4 2 9 4 7 5 3	10/81	Urist	260-530	412-395				
NMW	AB	4 3 9 4 3 7 0	07/83	Jefferies	424	15				
NMW	AC	4 4 3 4 0 9 4	02/84	Seyedin et al.	530	416				
NMW	AD	4 4 5 5 2 5 6	06/84	Urist	260	350				
NMW	AE	4 5 6 3 3 5 0	01/86	Nathan et al.	424	95				
NMW	AF	4 5 6 3 4 8 9	10/86	Urist	524	21				
NMW	AG	4 8 7 7 8 6 4	10/89	Wang et al.	530	324				
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FOREIGN PATENT DOCUMENTS										
NMW	DX	DOCUMENT NUMBER			DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
		YES	NO							
NMW	AL	8 2 0 5 2 7 4	12/85	PCT (WO)						
NMW	AM	8 4 0 0 5 2 6	1/86	PCT (WD)						
NMW	AN	8 8 0 0 2 0 5	1/88	PCT (WD)						
NMW	AO	8 9 0 9 6 0 5	10/89	PCT (US)						
NMW	AP	8 9 1 0 4 0 9	11/89	PCT (US)						
OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)										
NMW	AR	Canalis et al. (1980) Science 210:1021-1023								
		14								
NMW	AS	Glowacki et al. (1981) Lancet 1:959-963								
		14								
NMW	AT	Reddi (1981) Collage Rel. Res. 1:209-226								
		14								
EXAMINER	Nathan M Nathan					DATE CONSIDERED				
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.										

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FORM 1615 REV. 7-80		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,928		
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)			APPLICANT Uppermann et al.		Sheet <u>2</u> of <u>10</u> FEB 14 1991			
			FILING DATE December 4, 1990		GROUP X52/150 GROUP 150			
U. S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA							
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MMW	AL 9 0 0 3 7 3 3	4/90	PCT (US)					
MMW	AM 0 1 2 8 0 4 1	12/84	EPO					
MMW	AN 0 1 4 8 1 5 5	2/85	EPO					
MMW	AO 0 1 6 9 0 1 6	1/86	EPO					
MMW	AP 0 1 8 2 4 8 3	5/86	EPO					
OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)								
MMW	AR	Sampath et al. (1981) Proc. Natl. Acad. Sci. USA 78:7599-7603						
MMW	AS	Farley et al. (1982) Biochem. 21:3508-3513						
MMW	AT	Maugh (1982) Science 217:819						
EXAMINER	DATE CONSIDERED							
Nathan M Nathan		10-91						
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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SEARCHED PTO 1449 RECEIVED TRADEMARK ST.		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,988					
						APPLICANT Uppermann et al.	Sheet 2 of 10 RECEIVED FEB 14 1991					
						FILING DATE December 4, 1990	GROUP 152/1525 UP 150					
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)												
U. S. PATENT DOCUMENTS												
EXAMINER INITIAL		DOCUMENT NUMBER			DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE		
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EXAMINER INITIAL		DOCUMENT NUMBER			DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION			
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MMW	AL	0	2	1	2	4	7	4	4/87	EP0	—	—
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)												
MMW	AR	Sampath et al. (1983) Proc. Natl. Acad. Sci. USA 80:6591-6595									1/1	
MMW	AS	Seyedin et al. (1983) J. Cell Biol. 97:1950-1953									1/1	
MMW	AT	Urist et al. (1983) Proc. Soc. Exp. Bio. Med. 173:194-199									1/1	
EXAMINER		<i>Matthew M. Urist</i>							DATE CONSIDERED 10-91			
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.												

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FORM 1610 REV. 7-5-86		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,988	RECEIVED		
					APPLICANT Uppermann et al.				
					FILING DATE December 4, 1990	GROUP 150 3	FEB 14 1991		
U. S. PATENT DOCUMENTS									
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
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AL								YES	NO
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)									
NM	AR	Simpson (1984) Trends Biochem. Sci. 9:527-530						14	
NM	AS	Urist et al. (1984) Clin. Orth. Rel. Res. 187:277-280						14	
NM	AT	Urist et al. (1984) Proc. Natl. Acad. Sci. USA 81:371-375						14	
EXAMINER		Signature: <i>Uathra M Uathra</i>				DATE CONSIDERED		10-91	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.									

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FORM PTO 146 REV. 7-80		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,988		
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT Uppermann et al.	RECEIVED		
					FILING DATE December 4, 1990	GROUP 152 1503 FEB 1 4 1991		
U. S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)								
NMW	AR	Centrella (1985) Proc. Natl. Acad. Sci. USA 82:7335-7339						14
NMW	AS	Klausner (1985) Biotechnology 3:567-568						14
NMW	AT	Olson et al. (1985) Analyt. Biochem. 146:232-237						14
EXAMINER <i>Uthman M. Uthman</i>		DATE CONSIDERED <i>10-91</i>						
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY. DOCKET NO. CRP-00120V	SERIAL NO. 621,988	Sheet 6 of 10			
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Oppermann et al.	RECEIVED FEB 14 1991				
				FIILING DATE December 4, 1990	GROUP 150 GROUP 150				
U.S. PATENT DOCUMENTS									
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)									
NMW	AR	Reddi (1985) Journal of Biomedical Materials Research 19:233-239							
NMW	AS	Sampath and Reddi (1985) Extracellular Matrix: Structure and Function							
		(A.H. Reddi, Ed.) Allen R. Liss, Publ., NY pp. 412-428							
NMW	AT	Seyedin et al. (1985) Proc. Natl. Acad. Sci. USA 82:2267-2271							
EXAMINED	Nathan M. Nathan				DATE CONSIDERED				
10-91									
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.									

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FORM PTAB-150 REV. 7-80		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,978	RECEIVED	
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT Uppermann et al.	FEB 14 1991		
					FILING DATE December 4, 1990	GROUP 1521503	GROUP 150	
U. S. PATENT DOCUMENTS								
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)								
NMR	AR	Colowick et al. (1987) Methods in Enzymology 146:294-312						14
NMR	AS	Padgett et al. Nature 325:81-84 (1987)						14
NMR	AT	Sampath et al. (1987) Proc. Natl. Acad. Sci. USA 84:7109-7113						14
EXAMINER	<u>Ullath M. Ullath</u>				DATE CONSIDERED			10-71
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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Sheet 5 of 10

FORM PTO-146 REV. 7-80		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,988	RECEIVED	
LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)						APPLICANT Uppermann et al.	FEB 14 1991		
						FILING DATE December 4, 1990	GROUP 152	1543 GROUP 150	
U. S. PATENT DOCUMENTS									
*EXAMINER INITIAL		DOCUMENT NUMBER		DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)									
<i>NMW</i>	AR	Weeks et al. (1987) Cell 51:861-867							
<i>NMW</i>	AS	LeGendre et al. (1988) Biotechniques 6:154-159							
<i>NMW</i>	AT	Wang et al. (1988) Calcified Tissue Int. (Suppl) Ab No. 146, pp. A37							
EXAMINER	<i>Ullman M. Ullman</i>				DATE CONSIDERED				
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>									

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U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				ATTY. DOCKET NO. CRP-0012DV	SERIAL NO. 621,988			
				APPLICANT Uppermann et al.	FEB 14 1991			
				FILING DATE December 4, 1990	GROUP 152 150 GROUP 150			
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AL							YES	NO
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)								
N/m	AR	Wang et al. II (1988) Proc. Natl. Acad. Sci. USA B5:9484-9488						
N/m	AS	Wozney et al (1988) Calcified Tissue Int. (Suppl) Ab No. 146, pp. A37						
N/m	AT	Wozney et al. II (1988) Science 242:1528-153						
EXAMINER	<u>Nottingham</u>			DATE CONSIDERED 10-91				
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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FORM PTO-1448
REV. 7-80

U. S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.
CRP-0012DV

SERIAL NO.
621,988

LIST OF REFERENCES CITED BY APPLICANT
(Use several sheets if necessary)

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U.S. PATENT DOCUMENTS

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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OTHERS (Including Author, Title, Date, Pertinent Pages, Etc.)

NMR	AR	Lyons et al. (1989) Proc. Natl. Acad. Sci. USA 86:4554-4558					
NMR	AS	Wang et al. (1990) PNAS 87:2220-2224					
	AT						

EXAMINER *Matthew M. Nutt* DATE CONSIDERED *10-91*

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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